

Studies on Suitability of Herbs in Preparation of *Burfi*

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ABSTRACT

The study was undertaken to check the suitability of herbs in traditional khoa based product like *Burfi* with an objectives to determine its effect of chemical and microbial attributes, optimize the level of herb in *Burfi*, shelf life study and to estimate the cost of production of herbal *Burfi*. The combination of herbs *Withania somnifera*, *Asparagus racemosus* and *Ocimum sanctum* were added in the ratio of 5:4:1 in *Burfi* at the rate of 1, 1.25, 1.5 and 2 percent concentration on the basis of khoa. Herbal *Burfi* with 1.25% level of herbs was most acceptable on the basis of sensory score given by trained panel of judges. On the basis of highest sensory score *Burfi* with 1.25 % herbs was selected for storage studies. Samples were stored in paperboard and vacuum packed LDPE at the temperature of 6-8 °C for 7 days. In terms of chemical, microbial and sensory attributes vacuum packed herbal *Burfi* sample was superior to paper board sample. Cost of production of herbal *Burfi* was estimated as Rs. 230.62 per kg which was slightly higher than the control sample i.e. Rs. 223.92 per kg.

Key words: *Burfi*, Herb, Ashwagandha, Shatavari, Tulsi, Sensory attributes

INTRODUCTION

Ashwagandha (*Withania Somnifera*) is considered one of the most important herbs in ayurvedic system of medicines. Because of its vast area of application, ayurvedic physicians have used it extensively in helping people with their ailments¹¹. This plant is claimed to have potent aphrodisiac, rejuvenative and life prolonging properties. It has general animating and regenerative qualities and is used among others for the treatment of nervous exhaustion,

memory related conditions, insomnia, tiredness potency issues, skin problems and coughing. It improves learning ability and memory capacity. It helps invigorate the body by rejuvenating the reproductive organs, just as a tree is invigorated by feeding the roots¹⁵. Ashwagandha is chemically rich with its varied content of active compounds, such as steroidal lactones (withanolides), sitoindosides and many useful steroidal alkaloids, and used for centuries to treat a wide range of diseases.

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Historically, Ashwagandha plant has been used as an aphrodisiac, sedative, liver tonic, diuretic, hypocholesterolemic, anxiolytic, antidepressive, anti-inflammatory agent¹⁰.

Shatavari (*Asparagus racemosus*) it well known ayurvedic drug. The root of Shatavari is also used in the treatment of nervous disorders, dyspepsia, diarrhea, dysentery, tumors, hyperpiesia (hyperplasia), neuropathy and hepatopathy. This plant is reported to have immunostimulant, antihepatotoxic and antioxytotic activities⁴. Shatavari is the main Ayurvedic rejuvenative tonic for the female. It is also used for menopausal symptoms and to increase lactation. It is a sweet and bitter herb which is said to be particularly balancing to Pitta Dosha. Recent reports on Shatavari indicate that the root extracts have antioxidant and anti-diarrheal activities in laboratory animals³.

Tulsi (*Ocimum sanctum*) a small herb seen throughout India, have been recommended for the treatment of bronchitis, bronchial asthma. Eugenol is the active constituent present in tulsi leaves¹⁴. It is an antioxidant. Malaria, diarrhoea, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever, insect bite etc. It used in antifertility, anticancer, antidiabetic, antifungal, antimicrobial medicines and has hepatoprotective, cardio protective, antiemetic, adaptogenic and diaphoretic actions.

Burfi has been favored as one of the most popular khoa based sweet all over India. The unique adaptability of khoa in terms of its flavor, body and texture to blend with a wide range of food adjust had permitted development of an impressive array of *Burfi* varieties⁷. The khoa *Burfi* prepared with fruits, nuts, chocolate, coconut, saffron, rawa, santra added *Burfi* are popular. These food adjustment makes products artfully used singly or in innovative combinations to delight a gourmet². Variation in ingredient, their proportion and processing condition affects the quality of *Burfi*, and lack of knowledge in these aspects is a serious limitation for process standardization and quality control of *Burfi*. Today consumer awareness increases with the

relationship between the diet and health. The knowledge of nutrition among general population has led to development of food, meeting specific nutrition requirement for better immunity and health. We can deliver specific health benefits in familiar manner by incorporation of beneficial ingredients into existing food products like *Burfi*. Khoa is used as carrier material for herbs. Herbal products are gradually gaining popularity in world market due to presence of rich natural antioxidants and functionally active ingredients. Use of botanicals in food is popular due to excellent therapeutic value and nutraceutical properties.

Presently, herbal products either in the form of cosmetics or foods has become more popular in the world market. In fact people are now suffering from various diseases. Epidemiological data as well as in vitro studies strongly suggest that foods containing phytochemicals with anti-oxidation potential have strong protective effects against major disease risks including cancer and cardiovascular diseases⁸. After observing all this problems and remedies, entrepreneurs are now concentrating on the preparation of herbal sweets that are rich in natural antioxidants and functionally active nutrients. Herbal sweets preparation is a new concept in dairy industry. Combined dairy products (dairy product + herbs) therefore serve as a good source of antioxidant. Thus, it was planned to standardize a method comprising suitability of herbs in khoa based products *Burfi*.

MATERIAL AND METHODS

The control burfi was prepared as per the method suggested by Sachdeva and Rajorhia¹⁴ with slight modifications. While herbal *burfi* prepared by the following method as shown in Fig. 1.

Sensory evaluation

The fresh samples of *burfi* were subjected to organoleptic evaluation to panel of 7 judges by using 9 point hedonic scale. The samples were judged for sensory attributes like color, appearance, body and texture, flavor and overall acceptability. The scores ascertained

for each factor and expressed numerically on a scale of 1-9.

Statistical analysis

The data obtained after all the analysis of *burfi* samples were subjected to statistical analysis to determine the level of significance between quality parameters of different treatments by using “One Way ANOVA” & means compared according to appropriate methods described by Snedecor and Cochran¹⁷. Treatment of herb given to *burfi* in following ways

Control = milk *burfi* + no herb

T1 = milk *burfi* +1 per cent herb on khoa basis

T2 = milk *burfi* +1.25 per cent herb on khoa basis

T3 = milk *burfi* +1.5 per cent herb on khoa basis

T4 = milk *burfi* + 2 per cent herb on khoa basis

Each treatment was replicated for three times.

RESULTS AND DISCUSSION

Preliminary trials were conducted to optimize the levels of herbs powder in *Burfi*. The sensory analysis of added herbs in *Burfi* was performed by a trained panel of seven judges from institute. The scoring of sample was done on the basis of a 9- point hedonic scale, described by Piggot¹². The sensory evaluation attributes color and appearance, body and texture, flavor and overall acceptability were gathered in accordance with the total scoring given by the panelists of each assortment of the new product. The sensory scores obtained for each treatment of *Burfi* added with herbs are presented in Table 1.

Color

Sensory score obtained as indicated in Table 1 for color of *Burfi* added with different level of herb T1, T2, T3 and T4 were 6.93 ± 0.88 , 6.93 ± 0.79 , 5.86 ± 1.30 and 5.81 ± 1.46 respectively. Sensory scores for color decreased in the order of $T4 < T3 < T2 = T1$ with increased per cent of herb addition. Sample T4 herbal *Burfi* had lowest score because of dark color of herb. Tulsi leaves powder imparts its green colour to the

products. *Burfi* sample T1, T2 herbs showed maximum acceptance for color. Statistical analysis by ANOVA showed that there were significant differences ($P > 5\%$) among the *Burfi* containing different levels of herbs and their corresponding control sample. Londhe *et al.*⁹, reported decrease in colour score during storage study of brown Peda at 30 °C using different packaging materials.

Appearance

Sensory score obtained as indicated in Table 1 for appearance of *Burfi* added with different level of herb T1, T2, T3 and T4 were 6.80 ± 0.86 , 7.20 ± 0.67 , 5.93 ± 1.38 and 6.00 ± 1.13 respectively. Sensory scores for appearance decreased in the order of $T2 > T1 > T4 > T3$ percent of herb addition. *Burfi* sample T2 herbs showed maximum acceptance for appearance. Statistical analysis showed that there were significant differences ($P > 5\%$) among the *Burfi* containing different levels of herbs and their corresponding control sample. Londhe *et al.*⁹, reported decrease in appearance score during storage study of brown Peda at 30 °C using different packaging materials.

Body and Texture

Sensory score for body and texture (Table 1) of *Burfi* added with different level of herb T1, T2, T3 and T4 were 6.80 ± 1.2 , 7.07 ± 1.22 , 6.47 ± 1.06 and $6.73 \pm 0.1.22$ respectively. Sensory scores for body and texture decreased in the order of $T2 > T1 > T4 > T3$ percent of herb addition. *Burfi* sample T2 showed maximum acceptance for body and texture. Statistical analysis by ANOVA showed that there were no significant differences ($P > 5\%$) among the *Burfi* containing different levels of herbs and their corresponding control sample. Londhe *et al.*⁹, reported decrease in body and texture score during storage study of brown Peda at 30 °C using different packaging materials.

Flavor

Sensory scores for flavor of *Burfi* (Table 1) added with different level of herb T1, T2, T3 and T4 were 7.27 ± 0.78 , 7.27 ± 0.90 , 6.87 ± 0.91 and 6.73 ± 1.16 respectively. Flavor acceptance of *Burfi* samples decreased in the order $T2 = T1 > T3 > T4$ percent herb addition. *Burfi*

sample T2 showed maximum acceptance for flavor. T4 shows lower sensory score due to high after taste. Statistical analysis by ANOVA showed that there were non-significant differences ($P>5\%$) among the *Burfi* containing different levels of herbs and their corresponding control sample. Sharma and Kulkarni¹⁶ also reported the decrease in mean flavour and body and texture scores of the control and MAP packaged Malai Peda samples in flexible packaging material at room temperature.

Overall acceptability

Sensory scores obtained as indicated in Table 1 for Overall acceptability of *Burfi* added with different level of herb T1, T2, T3 and T4 were 6.93 ± 0.96 , 7.07 ± 1.22 , 6.40 ± 1.29 and 6.33 ± 1.23 respectively. Overall acceptability of *Burfi* samples decreased in the order $T2>T1>T3>T4$ percent herb addition. *Burfi* sample T2 showed maximum acceptance for overall acceptance. Statistical analysis showed that there were significant differences ($P>5\%$)

among the *burfi* containing different levels of herbs and their corresponding control sample. *Burfi* sample T2 (1.25 percent of herbs) exhibited maximum score for color (6.93), appearance (7.20), body and texture (7.07), Flavor (7.27) and Overall acceptance (7.07) (next to control *Burfi*) as evident from Table 5. The remaining levels viz., T1, T3 and T4 showed significantly lower sensory scores as compared to control and hence they were not accepted. Significant differences ($P>5\%$) were observed in color, appearance and overall acceptability and non-significant differences were observed in body and texture and flavor *Burfi* added with different levels of herb compared with the control. Hence, on the basis of these preliminary studies 1.25% herb added *Burfi* was selected for storage study and for determination of cost of production. Londhe *et al.*⁹, also reported decrease in overall acceptability score during storage study of brown Peda at 30°C using different packaging materials.

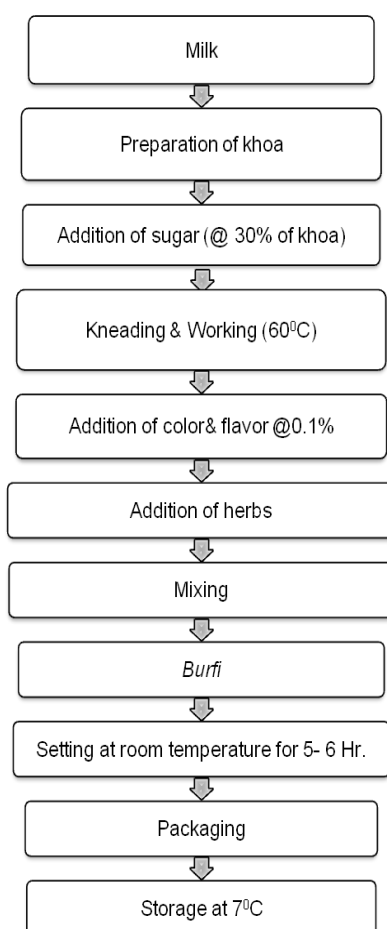


Fig. 1: Flow diagram for manufacture of herbal *Burfi*

Table 1: Sensory score of herbal *burfi* for herbs addition

Treatment	Color	Appearance	Body & Texture	Flavor	Overall acceptability
Control	8.13±0.74 ^a	8.13± 0.63 ^a	7.53± 0.99	7.60±0.98	7.67±0.81 ^a
T1	6.93± 0.88 ^b	6.80± 0.86 ^b	6.80± 1.2	7.27±0.78	6.93±0.96 ^{ab}
T2	6.93±0.79^b	7.20±0.67^b	7.07±1.22	7.27±0.90	7.07±1.22^{ab}
T3	5.86±1.30 ^c	5.93±1.38 ^c	6.47±1.06	6.87±0.91	6.40±1.29 ^b
T4	5.81±1.46 ^c	6.00±1.13 ^c	6.73±01.22	6.73±1.16	6.33±1.23 ^b
Level of significance	*	*	NS	NS	*

CONCLUSION

The results of the present investigation have established the successful use of herb in traditional dairy product like *Burfi*. The present product was prepared on the basis of traditional therapeutics knowledge and the standardized process of product development. It introduced the concept of standard processing with some combination of the functional characteristics of herbal ingredients. Herbs (1.25%) can successfully been added into *Burfi* without any significant change in its sensory, physico-chemical and microbial attributes of the original product. Addition of herbs gives optimum shelf life to the *Burfi* without change in its properties.

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